(b) whether any project for industrial technological development has been taken up; and

(c) if so, what progress has been made so far in this regard?

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY AND THE MINISTER OF STATE IN THE DEPARTMENTS OF OCEAN DEVELOPMENT, ATOMIC ENERGY, ELECTRONICS AND SPACE (SHRI K. R. NARAYANAN): (a) The main projects in frontier technology relate to; Intermetallics, Quasicrystals, Processed Modelling, Membrane Separation, and Computer Aided Design. Out of the above the following aspects have been completed:

(i) Theoretical studies of structure and stability of titanium aluminides (one of the important intermetallic system) have been done.

(ii) The structure of some of quasicrystalline phases and a few alloy systems which exhibt quasicrystalline phase have been understood and established.

(iii) A computer software package for easy optimisation of process parameters and die design in extrusion and forging of metals to achieve desired set of properties has been developed; and

(iv) A software package for optimum designing of lies for diecasting of aluminium base alloys has been developed.

(b) Yes, Sir. A concerted effort has been made in initiating industrial oriented projects in collaboration with industries and other organisations. Some of the major projects are:

(i) Project on Railway Track Dynamics for studying rail-wheel interaction.

(ii) Thermophysical properties data bank for chemical industries.

(iii) Development of low head microhydro turbines for power generation locally in hilly and remote areas; and

(iv) Setting up of industrial wind tunnel facilities for analysing effect of wind loads on Civil Engineering.

(c) The following milestones have been achieved in these programmes:

(i) *Project on Railway Track Dynamics*: A software has been developed by Indian Institute of Science, Bangalore in collaboration with Research, Development and Standardisation Organisation (RDSO), Lucknow for analysing the contact stresses. Also, a track model has been developed, the validation of which will be completed in another year.

(ii) *Programme of Thermophysical Properties Data Bank of Chemicals*: Six agencies are working together to compile the properties of around 300 chemicals. It is expected that in another year's time two data centres—one at IIT, Bombay and the other at NCL, Pune will be set up.

(iii) *Development of low head microhydro turbines* : Design, development and fabrication of Cross Flow Turbine have been completed. The prototype of 12KW capacity Cross Flow Turbine fabricated has been installed at Kempti Falls, UP, the trials of which will commence shortly.

(iv) Industrial wind tunnel facility has already been set up at Roorkee University. Experimental investigations have been carried out on some of the models of engineering structures like antenna tower and cluster of tall buildings.

Collection of Weather Data by Meterological Stations

2639. SHRIMATI VEENA VERMA:
SHRI KAPIL VERMA:

Will the PRIME MINISTER be pleased to state:

(a) whether the weather data collected by the meteorological stations, particularly by manual methods, for the newly set up super computer for weather fore-

cast have been found sufficiently accurate; if not, the reasons therefor and the steps being taken to improve the performance in this regard;

(b) by when the super computer would start functioning and give weather forecast; and

(c) what system is being followed presently?

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY AND THE MINISTER OF STATE IN THE DEPARTMENTS OF OCEAN DEVELOPMENT, ATOMIC ENERGY, ELECTRONICS AND SPACE (SHRI K. R. NARAYANAN): (a) The newly set up Supercomputer is using the global meteorological data received in New Delhi which is identical to the one available in any other meteorological office in the world. Any geo-physical observation such as upper air data has intrinsic uncertainty and hence often is a matter of subjective assessment even among experts. Data quality both national and international are therefore kept under close scrutiny and review.

(b) The Supercomputer is already functional and is being used for the development of suitable atmospheric models for medium range weather forecasting *i.e.* for the period 3 to 10 days in advance. As no readymade models for forecasting of monsoon exist anywhere in the world, these have, therefore, to be developed in India and could take a few years.

(c) Presently India Meteorological Department issues weather forecast on short-range time scale, i.e. for period 1 to 3 days in advance and long-range time scale, *i.e.* for a season in advance. The short-range forecasts are based on a combination of synoptic methods and guidance from limited area numerical models. The long-range seasonal forecasts are based on newly developed parametric model which takes into account a large number of regional and global parameters.

Implementation of pay Scales for Homoeopathic Pharmacists/Compounders

2640. SHRI ASHOK NATH VERMA: Will the Minister of HEALTH AND FAMILY WELFARE be pleased to state:

(a) whether it is a fact that the eligibility criteria for appointment as homoeopathic pharmacists/compounders under CGHS, DHS, NDMC and MCD is Matriculation or equivalent, with at least two years' experience as a homoeopathic Pharmacists;

(b) if so, the number of departments whether the Pay scale of Rs. 1350-2200, recommended by the IVth Central Pay Commission, have not been implemented so far; and

(c) what steps Government propose to take to implement the recommended pay scale, where not implemented, so as to remove the existing disparity among the employees?

THE MINISTER OF STATE OF THE MINISTRY OF HEALTH AND FAMILY WELFARE (SHRI RAFIQUE ALAM): (a) to (c) Information is being collected and will be laid on the Table of the House.

Appointment/Promotion of Persons Declared Successful in 1981

2641. SHRI MOHD. KHALEELUR RAHMAN: Will the Minister of COMMUNICATIONS be pleased to state:

(a) the number of details, together with date of appointment/promotion of persons declared successful as a result of an examination held in 1981 for LSG;

(b) what is the merit-wise position in the waiting list, if any; whether it is a fact that no merit-list is kept, if so, what are the reasons therefor;

(c) whether it is a fact that persons belonging to 1966 batch were promoted as Regular Supervisors, whereas those of 1962 batch were ignored; if so, the names of persons who were denied promotion and the rerasons therefor;